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The descent of man from some ancestor common to him and the anthropoids is advocated, but it is argued that the law of continuity does not require that the human mind has been developed by the same causes that account for man's physical structure. As the glacial age introduced into the earth's history a new cause, with new effects, so a new agency is needed to explain the appearance of the higher faculties, which are not necessities of our earthly existence, and "appear almost suddenly and in perfect development in the higher civilized races." A new cause manifested itself first in organic life, next in sensation and consciousness, and last in a rational and moral being; and these manifestations of life "probably depend on different degrees of spiritual influx." The Darwinian theory, carried to logical conclusion, does not, in the judgment of Dr. Wallace, oppose, but lends decided support to, the spiritual nature of man.

Such are the principal topics of interest. Others, as, for example, an offered solution of complex modes of cross-fertilization of plants, might be mentioned. A regret may be expressed, that, in treating of variability, the author has confined himself too much to variation in mere proportions of form and color; also, that, on the subject of habits and instincts, he has not taken into consideration the quickness and permanence of sense-association and of associated impulses in animals, remarkably illustrated, for instance, in the dog-and-geese incident from the *Revue Scientifique* lately given in our pages. But the work is as comprehensive as might be expected in view of its special purpose.

*The Child and Child Nature.* By the BARONESS MARENHOLTZ-BUELOW. Tr. by ALICE M. CHRISTIE. Syracuse, N.Y., C. W. Bardeen. 8°. \$1.50.

THE object of this work is to explain and defend the system of education devised by Froebel, and especially the series of exercises and songs that he invented for mothers to use in training their children. The authoress is deeply impressed with the failings of humanity in the present age, and especially with its moral defects, and thinks that the only way to counteract them is by the reform of education. Froebel's system she believes to be the right one, and she has devoted many years to the work of propagating it. A considerable part of this book is taken up with an exposition of Froebel's peculiar philosophy, which we have always found repulsive, but which seems to have a strange attraction for some minds. Froebel's theory is that education must proceed according to the universal law of development, which is "the reconciliation of opposites," or "the law of balance." What this so-called law really is, it is hard to find out, though in one place we are told that "Newton calls the law in question the law of gravitation." Then we are treated to remarks about "the continuity and inter-connection of all things in the universe," and so forth; but what all this flummery has to do with the education of children we are unable to see. Being at last out of this quagmire, the authoress proceeds to explain the practical methods of teaching devised by Froebel, beginning with the kindergarten, but devoting most attention to the exercises designed for the use of mothers at home. In most of these exercises the child makes a kind of figure with his hands which is supposed to represent some natural or artificial object, and the mother then sings a song. The resemblance, however, between the figure made with the hands and the object it is said to represent is not apparent to us, while the songs as they appear in English are little better than nonsense. Besides these exercises, which are to be systematically practised, Froebel wished to place the young child under a mass of other regulations, and even to regulate and systematize the mother's caresses. What merit there may be in his devices, only actual trial can determine; but we should think that such artificial treatment at the very beginning of life must seriously hamper the natural and spontaneous development of the child. We are not surprised, therefore, to find the authoress remarking of the book in which this system is set forth—the "Mutter und Koserlieder"—that she has learned by repeated experience "that in no way is so much opposition to Froebel's system excited as by any endeavor to propagate this book." She, however, is enthusiastic in its favor, and those who wish to understand the system it advocates will find it elaborately set forth in her book.

#### AMONG THE PUBLISHERS.

AMONG the popular scientific articles to be published in *The Century* during the coming year will be reports of the latest studies and discoveries made at the Lick Observatory in California, furnished by Professor Holden. Professor Putnam of Harvard has written a series of papers for the same magazine on prehistoric America, in which he will give the result of his own explorations of caves, burial-places, village sites, etc. A detailed account of the strange earth-work known as the Serpent Mound of Adams County, O., will be printed, and the illustrations of some of the papers will include a number of terra-cotta figures of men and women in a style of modelling heretofore unknown in American prehistoric art.

—The Appletons have published "A First Book in American History," by Edward Eggleston, intended for beginners in historical study. It is really a series of biographies of men more or less prominent in American annals, beginning with Columbus and ending with Lincoln, the author believing that children cannot follow the political development of a nation understandingly, and that biography is for them the natural door into history. There is much truth in this view, and Mr. Eggleston has been pretty successful in carrying it into practice, the men whose lives he relates being not only leading actors in American history, but also representatives of American character. The style in which the stories are told is likely to interest children, and the numerous illustrations in the book add to its interest and instructiveness. There is, however, no attempt to connect the various lives recounted so as to make a continuous narrative, and the reader gets no idea of the course of American history as an organic whole. In short, the book is not history, but only an introduction to history, and as such it has considerable merit.

—"Pensions for All" is the title under which Gen. M. M. Trumbull will give a severe lashing to the treasury raiders, in the October *Popular Science Monthly*. The writer was a general in the civil war, and is anxious for the honor, as well as the due rewards, of the former soldiers, and he expresses the fervent wish that the "pension temptation" may not "change the character or diminish the fame of the Grand Army." Dr. M. Allen Starr will have an article on "The Old and the New Phrenology," showing, with the aid of illustrations, what has been definitely learned about the location of the various mental faculties in the brain, and how the errors of Gall and Spurzheim have been exposed. A lively picture of "Evolution as taught in a Theological Seminary" will be given by Rollo Ogden. The writer finds his material for criticism in the lectures on dogmatic theology given in the Union Theological Seminary. Professor J. Howard Gore will contribute an article on "Anthropology at Washington," describing the investigations of the customs and history of the Indians and Mound-Builders which are being made by the government scientific bureaus.

—It is not generally known that there was an American governor of Emin Bey's province in Africa, which has recently attracted so much attention, owing to Stanley's relief expedition. Colonel H. G. Prout, who is now editor of the *Railroad Gazette*, was the immediate successor of General Gordon as governor of the Equatorial Province, and was one of his most trusted friends. It is announced that in the November *Scribner* Colonel Prout will fully describe Emin Bey's province, and will give many interesting recollections of General Gordon, with extracts from some unique private correspondence, and with a number of facsimiles of Gordon's letters and maps.

—The Rev. A. K. Glover will shortly publish a small volume entitled "The Jews of the Far East, or the Jews of the Extreme Eastern Diaspora," with the original Chinese texts of the inscriptions discovered at Kaifung-tu.

—D. C. Heath & Co. will publish in September, a translation of "Lindner's Empirical Psychology," by Charles DeGarmo, Ph.D., of the Illinois State Normal University. As the name implies, it is based on common experience rather than on metaphysical theories. It is written from the Herbartian standpoint, and is of interest from the light it throws on the science of teaching. The common complaint is that our ordinary abstract and verbal systems of psy-

chology appear to have only a remote bearing upon the business of teaching. The same firm publishes Sept. 20, "Sept Grand Auteurs du XIXe Siècle: Lamartine, Hugo, de Vigny, de Musset, Theophile Gautier, Merimee, Coppee, An Introduction to Nineteenth Century French Literature," by Alcée Fortier, professor of French, Tulane University of Louisiana. This book consists of a series of lectures, written for students, and forms a superior French reader, giving an account of the lives and writings of seven great French authors.

— The *New England Magazine*, an illustrated monthly, will be published at once in Boston, under the control of Dr. E. E. Hale and Edwin D. Mead. While largely devoted to the past of New England, the articles will not be confined to local topics. Short biographies of Parnell and Gladstone, papers on the French settlements in America, remarkable cities in New England, and fiction in prose and verse, are among the attractions promised during the first year.

— Joseph Thomson, who made the remarkable journey across Masai-land, in Africa, says in *Scribner's* for October: "It is my belief that if Stanley had taken this route [across Masai-land] those disastrous losses in men and goods which befell him would have been avoided, work would have been done in half the time, and a practicable route would have been opened,— an all-important work still to be done, and which must yet be done if the great work commenced by Sir Samuel Baker, carried on by Gen. Gordon, and solidified and extended by Emin Pacha, is not to be sacrificed, and the people once more given up to all the horrors of the slave trade." In the same number Professor N. S. Shaler of Harvard, after a careful consideration of the much neglected condition of the common roads in this country, makes the following suggestions: "I would in the first place suggest that in the Federal Department of Agriculture there should be a commissioner of roads, having at his command sufficient means to prepare and print as public documents accounts of the condition of roadways in this country, with essays on the method of their construction. Each State should likewise have a commissioner of public ways, whose duty should be to advance education in this class of questions in every possible manner. To him the town and county road commissioners should be required to report. He should cause to be constructed a map showing the location and condition of all the roadways in the State. These ways he should classify as regards their condition. Our country folk wallow in the mire of their ways, pay excessive tolls, endure, in a word, a grinding taxation, generation after generation, without appreciating the burden which rests upon them." Professor Charles Sprague Smith of Columbia College will give, in the same number of the magazine, the result of his observations on the present condition of the Icelanders. He made an interesting journey to Iceland in the summer of 1888, during which time he resided with the dean of a diocese near Reykjavik, and made with him an interesting journey into the interior of the island.

— The *Political Science Quarterly* for September has an article on "Italian Immigration," which is of some importance at the present time. The author, Eugene Schuyler, has resided in Italy for three years past, and speaks from some personal acquaintance with the Italian people. The emigrants from Italy in 1888 numbered nearly two hundred thousand, of whom a large proportion came to the United States. Mr. Schuyler discusses the causes of the emigration, the chief of which is the difficulty of getting a living, and as to the character of the emigrants themselves expresses himself favorably. He admits that they are very illiterate, but thinks that they will prove a thrifty class and of good morals too. Another paper of some importance is by W. T. Moppin on "Farm Mortgages and the Small Farmer." Some writers, noticing the increase in farm mortgages in this country, have expressed the fear that the land was passing out of the hands of the small proprietors, who would eventually become an extinct class. Mr. Moppin combats this view, maintaining that the debts are incurred in order to make improvements on the farms or to stock new farms, and that they are in the end beneficial to the farmers. Mr. Clarence Deming treats of "Town Rule in Connecticut," showing the inequalities of representation in the legislature, the little town of Union, for instance, with only 118 voters, having as many repre-

sentatives as New Haven with nearly 18,000 voters. Besides these articles the *Quarterly* has the first instalment of an essay on "English Legal History," treating of the methods and materials of such history, and articles on "James E. Thorold Rogers," by W. J. Ashley, and on "Railroad Indemnity Lands," by Fred. Perry Powers.

— Ginn & Co. announce for publication "The Method of Least Squares," by G. C. Comstock, professor of astronomy in the University of Wisconsin, and director of the Washburn Observatory. This work contains a presentation of the methods of treating observed numerical data which are in use among astronomers, physicists, and engineers. It has been written for the student, and presupposes only such mathematical attainments as are usually possessed by those who have completed the first two years of the curriculum of any of our better schools of science or engineering. The principle of least squares is derived from the observed distribution of residuals in certain typical series of observations, and not from an assumed law of the causes of error, thus diminishing the mathematical difficulties usually encountered at the threshold of the subject. Especial care has been taken to apply all of the leading principles of the method to numerical data selected from published observations, and to give the computations in full, so that they may serve the inexperienced computer as models. It has been the author's purpose to so present the subject that a working knowledge of the method based upon an appreciation of its principles may be acquired with a moderate expenditure of time and labor.

— A book that is sure of a sympathetic audience is "Dante Gabriel Rossetti as Designer and Writer," by his brother William M. Rossetti, including a prose paraphrase of "The House of Life," which Cassell & Co. announce. The present is the only volume that William M. Rossetti has issued regarding his famous brother, though he has kept his memory green by several contributions to the magazines, one of them on the "Portraits of Rossetti," published in the *Magazine of Art*. In this volume the author has not attempted to write a biographical or critical account of Dante Rossetti. "Mine is a book of memoranda and of details," he says. A portrait of the poet at the age of thirty-five accompanies the book.

— On Saturday, Aug. 17, President Carnot received at a private audience in the Palais de l'Elysée, Paris, Dr. R. H. Thurston, director of Sibley College, Cornell University. Dr. Thurston has made a translation into English of the celebrated work of Sadi-Carnot, the great-uncle of the president, "Réflexions sur la Puissance Motrice du Feu,"—a work which had never before been translated into English, but which has become famous throughout the world as the basis of the whole structure of the modern science of thermodynamics. Published in 1824, it was comparatively unknown, until Sir William Thomson, the distinguished British *savant*, called attention to its enormous importance; and its author has thus become famous as the greatest genius which has appeared in that department of science during the nineteenth century. The president of the republic kindly consented that Dr. Thurston should dedicate to him his translation of this great work. The following is the very elegant phraseology which Dr. Thurston proposes to give to this dedication: "Dedicated to Sadi-Carnot, president of the French Republic, that distinguished member of the engineering profession whose whole life has been an honor to the profession and to his country, and who, elevated to the highest office within the gift of the French nation, has proven, by the quiet dignity and the efficiency with which he has performed his august duties, that he is a worthy member of his own noble family, already rendered famous by an earlier Sadi-Carnot, now immortal in the annals of science, and has shown himself deserving of enrolment in the list of great men, which includes that other distinguished engineer, our own first President, George Washington."

— Retail grocers, and other retail dealers doing a credit business, are adopting a plan that is at once novel and decidedly useful. They issue to their customers coupon books similar to mileage books for railways, but instead of the coupons being for one mile, they are for one cent each; the value of the books varying from two to twenty dollars. These coupons are good for their face value in groceries or other merchandise at the store of the firm issuing them. When the books are issued, the dealer charges

his customer with the value of the book. When pay-day comes the customer pays this amount, and meantime uses the coupons for the purchase of supplies, the same as paying cash, thus avoiding all disputed accounts and saving valuable time to both the dealer and his customer. They are manufactured by the Historical Publishing Company, of Dayton, Ohio.

— The October issue of *The Chautauquan* is the initial number of Vol. X., and appears in a new form and with a cover of new design. It presents the following in the table of contents: "The Politics Which Made and Unmade Rome," by President C. K. Adams, of Cornell University; "The Life of the Romans," by Principal James Donaldson, of the University of St. Andrews, Scotland; Macaulay's "Lays of Ancient Rome," paraphrased by Arlo Bates; "Map Quiz" on *The Chautauquan* Map Series; "The Study of the Seasons," by Professor N. S. Shaler, of Harvard University; "Child Labor and Some of its Results," by Helen Campbell; "Mental Philosophy," by John Habberton; "The Uses of Mathematics," by Professor A. S. Hardy, Ph.D., of Dartmouth College; "The Burial of Rome," by Rodolfo Lanciani, of the University of Rome. Professor La Roy F. Griffin explains the general principles of "Explosions and Explosives"; "Canada and Ireland: A Political Parallel," is discussed by Professor J. P. Mahaffy of Dublin University; "The Future Indian School System" is an article full of practical suggestions for improving Indian schools, by Elaine Goodale; Hon. S. G. W. Benjamin, ex-minister to Persia, writes entertainingly of "The Women of Persia"; Bishop J. F. Hurst tells much that is interesting about "The Current Literature of India"; "Impressions Made by the Paris Exposition" is a timely article, translated from the *Revue des Deux Mondes*. The list of contributed articles ends with the Rev. J. G. Wood's observations of "Some Odd Fishes."

#### LETTERS TO THE EDITOR.

\*.\*Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The editor will be glad to publish any queries consonant with the character of the journal.

Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

#### Methods of Burial.

THERE is one method of preserving the body that is well worthy of notice, and that has not received the attention that its importance demands. It is the desiccation of the remains, considered in a report on the disposal of the dead, by John M. Peacocke, M.D., presented to the Medical Society of the county of Kings, Brooklyn. Long before the Spanish conquest, the Peruvians were adepts in this mode of preserving the dead. The bodies of the Incas, and their queens and countless numbers of their subjects, testify to this. The interesting question is often asked whether the ancient Peruvians embalmed their corpses, or whether the bodies owe their good preservation to the influence of the climate, which is so conducive to mummification. Señor Rivero, the director of the National Museum at Lima, having examined hundreds of mummies, was unable to find any preservative substance in them. It is true that in the skulls a brown or blackish mass, in dust or small pieces, has been found; but a chemical and microscopical analysis has proved that the dust and the pieces were composed of cerebral fat and globules of dried blood. All the mummies contain the brain and intestines, and in none of them could Rivero discover any incision which would have been necessary for evisceration had the bodies been subject to embalment. In the mummy of a child found by Dr. Von Schudi, and which is now in the Imperial Academy of St. Petersburg, the ribs of the left side were detached from the sternum, exposing the thoracic and part of the abdominal cavities, plainly showing the heart, with the pericardium, the shrivelled lungs, the diaphragm, the transverse colon, and portion of the small intestines. These facts prove that the Peruvians did not have recourse in the preservation of the dead to any elaborate process of embalming as customary among the Egyptians. The bodies were simply desiccated by exposure to the air. The heated soil and calcined sand on the coast dried the corpse, and the pure cold air and dry winds of the interior did the same thing.

In Peru the animals that drop by the wayside will be found at the end of months entire, not corrupted, but dried. On the highway from Arequipa to Lima a number of the mummified animals are to be seen, which serve as landmarks to indicate the road when the wind covers it with sand. The climatic conditions of the imperial city of Cuzco are very favorable to the desiccating process. Here, in the great temple of the Sun, the remains of the Incas have been discovered in a marvellous and lifelike condition. Cuzco, the most ancient city of Peru, has an elevation of 11,380 feet above the sea. Surrounded by lofty and snowclad mountains, it might be supposed to possess a cold, not to say frigid, climate; but its temperature, though cool, is seldom freezing. In what is called the winter season, from May to November, the pastures and fields are dry and withered, more from drought than from frost.

La Casas describes the Peruvian burial rites as follows: "The dead are wrapped in the skin of the llama, then clothed and deposited in a sitting posture. The doors of the tombs, which are all toward the east, are then closed with stone or clay. At the end of a year, when the body becomes dry, the doors are again opened. There is no bad odor, because the skins in which the bodies are placed are sewn up very closely, and from the cold they soon become mummies."

Travellers in Africa have found bodies of camels, which had evidently died of fatigue in the desert, to be so dried and preserved by the heat of the sun that no evidences of post-mortem decay were discovered. The atmosphere of our North-west Territories is, in some places, so dry that the snows of winter pass off from the ground without leaving it wet, and mummified buffalo have been found on the plains of Colorado. When freshly killed meat is subjected to a dry summer heat, it is rapidly converted into the well-known *jerked beef* of the plains. Dried apples, peaches, and other fruits are familiar examples to every housekeeper of desiccated vegetable matter. This method of preservation is as widely known as it is primitive, and clearly indicates that absence of moisture prevents decomposition of organic material, or, in other words, desiccation takes the place of putrefaction. X.

New York, Sept. 16.

#### Monopolies and the People.

IN the criticism which you make (*Science*, xiv. p. 186) of the plan which I proposed for settling the railroad question, in my book "Monopolies and the People," I think you slightly misapprehend my views, as you say, "All fares and freight tariffs are to be fixed by the government commissioners." At the present time, in a number of the States of the Union, fares and freight tariffs are fixed by a State commission; and the provisions of the Interstate Commerce Law subject rates on all interstate traffic to the approval of the United States Government Commission.

My contention is that these rates should be fixed, not by a company, which holds a monopoly, or by a government commission, holding autocratic power. The one plan is unjust to the people; the other, to the railway-owners. The principle which seems to me the true one is, fix rates in proportion to the expense of carrying the traffic.

CHARLES WHITNEY BAKER.

New York, Sept. 14.

#### Queries.

48. ORIGIN OF THE COMMON NAME OF CROTALUS CERASTES. — Recently a naturalist friend residing in Santa Fé, N. Mex., begged to know of me the origin of the name "side-winder" for the horned rattlesnake (*C. cerastes*), and, although I have often heard that term applied to the crotaline species alluded to, I have never been able to ascertain how such a name came into use. The few persons versed in such lore to whom I have referred the matter could give no account of it, or state whether they knew of any particular habit of the horned rattler that would justify its being so called. Yarrow quotes the name in his "Check List of North American Reptilia and Batrachia" for the species in question, but, so far as I know, nowhere explains its origin; and I would be glad of any light upon this point.

R. W. SHUFELDT.

Takoma, D.C., Sept. 11.